

**Remarks**

This Amendment is being filed concurrently with a Request for Continued Examination ("RCE"). Reconsideration and allowance of this application, as amended, are respectfully requested.

Claims 1 and 20 have been amended. In view of the amendment of claim 1, claims 2, 3, and 8-16 have been canceled without prejudice or disclaimer. Claims 1, 4-7, and 17-20 are now pending in the application. Claims 1 and 20 are independent. The rejections are respectfully submitted to be obviated in view of the amendments and remarks presented herein. No new matter has been introduced through the foregoing amendments.

Claim 1 has been amended to incorporate features of the invention previously presented in now-canceled claims 2 and 3. Instant claim 1 recites in pertinent part that "both the channel structures and the engagement regions for the actuators [are] provided in the flexible material region." Claim 20 has been amended in a similar manner. Entry of each of the amendments is respectfully requested.

35 U.S.C. § 103(a) - Anazawa and Saaski

Claims 1-4, 7-10, 15-17, and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over WO 02/24320 of Anazawa et al. (U.S. Patent No. 7,238,325 to Anazawa et al., hereinafter

"Anazawa") in view of U.S. Patent No. 5,660,728 to Saaski et al. ("Saaski").

The rejection of claims 1-4, 7-10, 15-17, and 20 based on Anazawa and Saaski is respectfully deemed to be obviated. For at least the following reasons, the combined disclosures of Anazawa and Saaski would not have rendered obvious Applicants' presently claimed invention.

The combined disclosures of Anazawa and Saaski do not teach all of Applicants' claim features. Applicants' presently claimed cassette is structurally different from the structure that would result from the asserted the asserted Anazawa/Saaski combination.

The Office Action asserts that according to Anazawa "the flexible member may be constructed to be of a medium hard material surrounding the region of the cavity and of a soft material with a lower tensile modulus of elasticity at the corresponding position of this cavity section for deforming" (abstract, and column 1, line 61, through column 2, line 49.

Applicants respectfully disagree. Anazawa states in column 2, lines 33-36, that "the member (B) is formed from a soft material . . . , at least within the portion which corresponds with the position of the cavity section." While this wording has been chosen by Anazawa to cover all suitable embodiments of member (B), whatever the corresponding frame or anchor element may be, the aforementioned disclosure would not lead the person having ordinary

skill in the art toward the construction of the disposable cassette defined in instant claim 1.

Each of the examples in Anazawa discloses that member (B), as in examples 1 to 9, or at least each layer on member (B) as in examples 10 (and the examples that follow), consists exclusively and entirely of one material, having the same physical properties, e.g., elasticity. Each of the disclosed "layers" of member (B) (see reference numbers 35 and 36) extend uniformly over the whole spread of layer (B). The sole material may be soft (sX) or medium-hard (mX), wherein X is an integer assigning a specific type of material. This is also evident from Figure 1, where layer (B) is designated by reference number 6; Figure 4, where layer (B) is designated by reference number 27; and Figure 5, where layer (B) is designated by reference numbers 35 and 36.

Hence, in all of the embodiments exemplified in Anazawa, the reference fails to teach that member (B) is rigid but includes a flexible material region around the engagement regions for activators or the channels.

Instant claim 1, however, requires that the first part of the disposable cassette (corresponding to Anazawa's layer (B)) does not in its entirety consist of the flexible material, but rather that *the flexible material is present in the channel structure and engagement regions thereof*, while the remaining regions of the first part are constructed of the rigid material. Hence, Applicants' presently claimed cassette is non-homogeneous in terms

of, e.g., its hardness and elasticity. Soft and elastic material is only employed in the regions around activator elements and/or channels.

Anazawa nowhere teaches that the channel structures and the engagement regions for the activators are shaped of the flexible part, i.e., layer (B). Instead, Anazawa exclusively teaches that the groove (2, 23, 32, 42) and the engagement region (3, 33) are engraved in the substrate material (e.g., 1) only.

Conversely, according to instant claim 1, the channels and activator elements are provided in the first part (which corresponds to layer (B) as of Anazawa), or more precisely, in the flexible material region of the first part. The channels and activator elements are then sealed by being covered with a cover plate.

One major advantage of Applicants' claimed construction is that the actuator elements can be operated more safely and more accurately than in Anazawa's construction. Furthermore, as disclosed at page 2, second paragraph, of the instant specification, the stability as well as the functionality of the sealing is not always ensured in a construction according to Anazawa.

Due to the soft and elastic nature of the sealing laminates in a construction according to the present invention, the sealing is more efficient. Additionally, due to the formation of the greater part of the first part of Applicants' disposable

cassette from rigid material, the overall apparatus is more rigid as compared to that of Anazawa (in which the whole layer (B) is constructed from the same, soft or medium hard (s or m) material).

The disclosure of Saaski fails to rectify the deficiencies of Anazawa. Saaski fails to teach Applicants' presently claimed feature of "the first part having a construction that includes a rigid material with a flexible material region associated therewith, with the rigid material and the flexible material region being of a one piece, two-component injection molded construction."

Saaski discloses at column 25, lines 16-41, how "[t]he substrate 34 and the membrane 36 may be *assembled* together." More specifically, at column 25, lines 16-23, Saaski teaches that

[t]he substrate 34 and the membrane 36 may be *assembled* together in any suitable leak-proof way. Alternatively, the substrate 34 and the membrane 36 may be *bonded* together in any suitable leak-proof way, such as by *anodically bonding* them together; such as by *fusing* them together (as by the use of heat or ultrasonic welding); and such as by using any suitable *bonding materials*, such as adhesive, glue, epoxy, solvents, glass solder, and metal solder. (Emphasis added)

That is not Applicants' claimed invention. The above-quoted disclosure from Saaski describes various options for the *subsequent* joining of two pieces (i.e., the substrate 34 and the membrane 36) that are *first* fabricated as *separate* pieces. Therefore, Saaski's teaching is very different from Applicants'

claimed structural requirement of a "one piece, two-component injection molded construction."

The person having ordinary skill in the art knows that Saaski's teaching would not enable one to provide a structure that is non-homogeneous in its properties such as, e.g., softness of elasticity. However, instant claim requires that "the first part hav[e] a construction that includes a rigid material with a flexible material region associated therewith, with the rigid material and the flexible material region being of a one piece, two-component injection molded construction." That is, Applicants' claimed structure includes two different materials exhibiting different properties, such as, for example, elastomeric properties, within a single integrally molded layer. The aforementioned feature is a very different from the structure described by Saaski.

Furthermore, there is simply no teaching in Anazawa and Saaski that would have led one to select the references and combine them, let alone in a way that would produce the invention defined by Applicants' instant claim 1.

Therefore, the combined disclosures of Anazawa and Saaski would not have rendered obvious the invention defined by claim 1. Now pending claims 4, 7, and 17 are allowable because they depend, either directly or indirectly, from claim 1, and for the subject matter recited therein.

Instant claim 20 recites in pertinent part "a first part that includes a rigid plastic portion and a flexible elastomeric

material portion, the flexible elastomeric material portion being integral with the rigid plastic portion by a one piece, two-component injection molded construction, the flexible elastomeric material portion including a channel for guiding a fluid and an engagement region for cooperation with a fluid transport actuator." Claim 20 is allowable for reasons similar to those presented for claim 1.

35 U.S.C. § 103(a) – Anazawa, Saaski, and Karp

Claims 5, 6, 11-14, 18, and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Anazawa and Saaski, and further in view of U.S. Patent Application Pub. No. US 2002/0081222 of Karp.

The rejection of claims 5, 6, 11-14, 18, and 19 based on Anazawa, Saaski, and Karp is similarly deemed to be obviated. Claims 5, 6, 18, and 19 remain pending herein. Claims 5, 6, 18, and 19 all depend, either directly or indirectly, from claim 1. Claim 1 is allowable for at least the reasons explained above. Regardless of what Karp may disclose with regard to a membrane pump, that teaching alone adds nothing that would rectify any of the above-described deficiencies of the asserted Anazawa/Saaski combination. Accordingly, now pending claims 5, 6, 18, and 19 are allowable because they depend from claim 1, and for the subject matter recited therein.

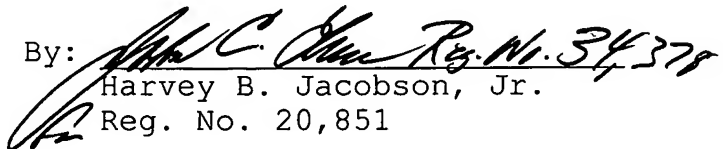
U.S. Appln. No.: 10/525,668  
Atty. Docket No.: P70348US0

In view of the foregoing, this application is now in condition for allowance. If the examiner believes that an interview might expedite prosecution, the examiner is invited to contact the undersigned.

Respectfully submitted,

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